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RMRS Records

STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department of Public Health and Environment

000100374

July 24, 1998

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U S Department of Energy
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Ms Karan North, Division Manager
Environmental Management and Compliance
Kaiser-Hill Company, L L C
P O Box 464
Golden, CO 80402-0464

RE: Closure Plan for Interim Status Units Modification Approval

Dear Mr Legare and Ms North

The Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and Environment (the Division), has reviewed your request to revise the Closure Plan for the Interim Status Units at the Rocky Flats Environmental Technology Site (hereafter called the Plan) You requested the addition of mixed residue tank systems currently being managed under Consent Order No 94-04-23-01, as well as idle equipment managed under Consent Order No 97-08-21-01 In your request, you stated that listings of all such units would be maintained up-to-date in accordance with the requirements of the applicable orders or agreements

The Division has determined that the proposed changes qualify as a Class 1 modification per Section 100 63 of the Colorado Hazardous Waste Regulations Class 1 modifications apply to minor changes that do not substantially reduce the capacity of a facility to protect human health or the environment

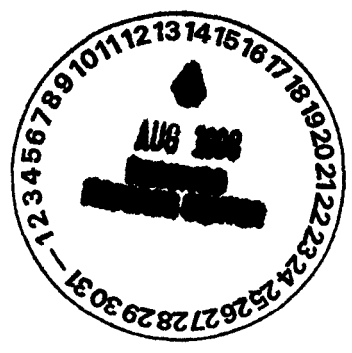
The Division hereby approves the proposed changes to the Plan with the following condition the Site shall modify the Master List of RCRA Units at RFETS to include the Idle Equipment inventory Reference to the inventory list "Appendix 1 - Idle Equipment with Hazardous Materials Inventory" required under Consent Order No 97-08-21-01 is acceptable As units are closed under this Plan, the Master List of RCRA Units at RFETS shall be revised, and for any idle equipment closed under this Plan, Appendix 1 shall be revised accordingly

Replacement pages for the revised Plan are attached The Plan is being issued by the Division in accordance with its authority under the Colorado Hazardous Waste Act, Sections 25-15-301 through 316, C R.S and the regulations thereunder If you have any questions regarding this matter, please contact Chris Gilbreath at (303) 692-3371

Sincerely,

Joe Schieffelin
Permitting and Compliance Unit Leader
Federal Facilities Program

cc T Rehder, EPA
J Wrapp, Kaiser-Hill, T-130C
Jefferson County Health Department



ADMIN RECORD

SW-A-004459

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CLOSURE PLAN FOR INTERIM STATUS UNITS

AT THE ROCKY FLATS

ENVIRONMENTAL TECHNOLOGY SITE

April 2, 1998
(Revised July 24, 1998)

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RCRA CLOSURE PLAN FOR INTERIM STATUS UNITS

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CLOSURE PLAN FOR INTERIM STATUS UNITS

A INTRODUCTION

This Closure Plan addresses closure of all hazardous and mixed waste container storage, tank storage, and treatment units identified in Appendix A as units in interim status In addition, this Closure Plan addresses closure of all hazardous and mixed waste container storage, tank storage, and treatment units managed pursuant to any Compliance Order issued by the Division or any other agreement between the Division and the Rocky Flats Environmental Technology Site (Site) unless otherwise stated in such orders or agreements For purposes of this Closure Plan, all such units shall be deemed "Interim Status Units " Listings of all such units be maintained up-to-date in accordance with the requirements of the applicable orders or agreements The listings will also be included in the "Master List of RCRA Units at RFETS" maintained by the Site and will be updated at least semi-annually General closure information is contained in Section B, while information regarding the specific activities to be conducted for closure of an interim status unit is identified in Sections C, D, and E of this Part All closure activities for interim status units will be conducted in a manner that protects human health and the environment and in accordance with this Closure Plan

The Site is planning to accomplish clean closure of all interim status units Contamination from these units found during closure activities that is impracticable to excavate or treat (if any) will be addressed through a modification of the Closure Plan to meet closure standards applicable to a landfill The scheduling of closure activities will be coordinated with the integrated management and prioritization of all Site activities through the Rocky Flats Cleanup Agreement (RFCA) annual budget planning and Integrated Sitewide Baseline (ISB) process

There are two scheduling scenarios for closure of interim status units

1 closure independent of cleanup activities regulated under RFCA (e g , a unit/area which will not be covered by the Decommissioning Program Plan (DPP) or a Decommissioning Operations Plan (DOP)), and

2 closure as part of a specific cleanup activity regulated under RFCA (e g , a unit/area within buildings to be decommissioned under the DPP or DOP process)

In either case, the closure plan described herein, or a closure plan modified in accordance with regulatory requirements, shall be used to accomplish closure

It is anticipated that final closure for interim status units will occur in most instances as part of building decommissioning regulated under RFCA RFCA provides that partial closure activities, in particular the removal of hazardous waste inventories and removing system components from operation will occur before decommissioning begins Some residual amounts of hazardous wastes may remain in systems and components after initial removal of inventories - that is, the units may be clean closed as part of decommissioning under RFCA

When partial or final closure is done as part of a specific cleanup activity regulated under RFCA, a decision document for that cleanup activity that addresses all of the closure requirements of 6CCR 1007-3, Part 265, Subpart G (e g , an Interim Measure/Interim Remedial Action [IM/IRA], a Proposed Action Memorandum [PAM], or Decommissioning Operations Plan [DOP]) will be submitted and approved by

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the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) in accordance with RFCA Although there will be a decision document for each activity, several activities may be consolidated under a single decision document The decision document will reference the applicable approved closure plan

If a modification to the Interim Status Closure Plan is necessary due to the nature of the cleanup activity being accomplished under a RFCA decision document, the modification request will be part of the decision document The modification will be reviewed and approved, modified and approved, or denied (including any required public comment period per the Colorado Hazardous Waste Regulations) as part of the RFCA decision document review and approval process The RFCA decision document will also contain the Closure Description Document information specified in Section B 2 of this Closure Plan

This Closure Plan contains the following information for the closure of the interim status units at the Site identified in Appendix A of this Closure Plan regulatory requirements, strategies for conducting closure, and criteria to determine if closure has been successful Regulatory requirements are identified in Section B General Closure Information Implementation of the closure strategies and closure performance standards are discussed in Section C Clean Closure by Decontamination, Section D "Debris Rule" Decontamination and Section E RCRA Stable

B GENERAL CLOSURE INFORMATION

The following describes the general regulatory requirements necessary for closure of the interim status units at the Site

1 Closure Plan

a CCR 1007-3, Part 265 requires the Operator to submit a plan for closure of the interim status units at the Site This Closure Plan addresses the following requirements Part 265, Subpart G - Closure and Post-Closure (Parts 265 1 10 through 265 120), Subpart I - Containers (Part 265 178), and Subpart J - Tanks (Parts 265 190 and 265 199)

b No demonstration of financial responsibility is required because compliance with 6 CCR 1007-3, Part 266, Subpart A - Financial Requirements, is not required for government-owned facilities

c If post-closure care requirements are determined to be necessary, they will be addressed through a modification of the Closure Plan and will be completed in accordance with an approved RFCA Decision Document

2 Content of the Closure Plan and Closure Description Document

a Each interim status unit at the Site will be closed in accordance with this Closure Plan and the unit-specific closure description document This Closure Plan identifies the methods of accomplishing closure and criteria, in the form of closure performance standards, which will be used to evaluate closure performance

b In addition, it identifies methods by which closure of interim status units may be accomplished through RFCA regulated cleanup activities in accordance with an approved RFCA decision document that addresses all of the closure requirements of 6 CCR, 1007-3 Part 265, Subpart G

c Specific plans for individual interim status unit closures will be contained in a Closure Description Document The purpose of the Closure Description Document will be to identify the portions or sections of this Closure Plan applicable to specific interim status unit closures The Closure Description Document will provide information on and rationale for the method of closure, the defined boundaries of the interim status unit, the type of closure to be performed (either partial or complete), the amount of waste to be generated, how the waste will be managed, the type of contamination to be addressed, decontamination method(s) to be conducted, decontamination media to be used, the schedule for accomplishing closure, and other applicable information associated with interim status unit closure activities

d This strategy for closure implementation is mandated by the number of interim status units that must be closed and the circumstances under which each of them will be closed relative to the options for closure Additionally, due to uncertainties concerning the future need for the buildings containing some of the existing interim status units, this strategy allows for their closure as appropriate

3 Facility Closure Notification

The Director will be notified of the intent to perform partial or final closure of any interim status unit(s) at least 45 days prior to the beginning of closure of the interim status unit(s) Accompanying the closure notification will be the Closure Description Document (CDD) detailing the portions of this Closure Plan applicable to the interim status unit scheduled for closure The Division will approve, modify and approve, or disapprove the CDD within 30 days of receipt In the event the Division fails to render a decision, the Permittee may proceed with closure of the unit after the end of the 45-day notification period In the case of closures of interim status units being done as part of a RFCA regulated cleanup activity, notification is accomplished by submittal of the RFCA decision document or by submittal of a closure notification and Closure Description Document

4 Closure Schedule

a Final closure of the interim status units will be completed in accordance with the Site's Integrated Sitewide Baseline or by 2006, whichever is sooner

b If the amount of time required for closure activities for an interim status unit will exceed 180 days, the Director will be notified within 30 days of the additional time necessary to complete the closure and the reason for the delay

c The scheduling of closure activities will be coordinated consistent with the integrated management and prioritization of all Site activities through the RFCA annual budget planning process

d Environmental monitoring procedures (e g , groundwater monitoring, soil sampling, etc) will be employed for RCRA units which have released hazardous waste to the environment These procedures will allow for the identification of the migration of any hazardous constituents If,

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during environmental monitoring, unanticipated migration of hazardous constituents is identified, remedial actions to prevent further migration will be evaluated and implemented per RFCA

e The closure of waste management facilities at the Site will be scheduled m conjunction with the Integrated Stewed Baseline (ISB) to occur as part of a RFCA regulated cleanup activity or as an independent activity as need dictates In some cases, the closures of individual units may occur at the same time that other units are being closed

The actual descriptions of how closure may be conducted under each of the closure options is discussed in Sections C, D, and E of this Closure Plan The logical sequence of an interim status unit closure is described in the following section

5 Sequence of Activities for Closure

a The closure of an interim status unit and associated equipment will be accomplished in accordance with this Closure Plan and the Division-approved Closure Description Document as described earlier in this section

b The Director will be notified of the intent to close an interim status unit identified in Appendix A of this Closure Plan within 30 days of the receipt of the final volume of waste at the unit, or at least 45 days prior to the initiation of closure activities where such unit has already received the final volume of hazardous waste

c Where final closure of a unit(s) is to be delayed to accomplish closure as part of a RFCA-regulated cleanup activity, closure will begin as specified in B 5 b above and waste inventory will be removed from the interim status unit within 180 days of commencing closure activities to achieve partial closure Administrative and engineering controls (e g , lock-out/tag-out, restricted access, etc) will be used to prevent any further hazardous or mixed waste inventory from entering the interim status unit

d Unit-specific closure schedules are currently unavailable for the interim status units at the Site In lieu of a unit-specific closure schedule, the ISB will be the basis for determining which buildings or structures are to be deactivated and/or decommissioned in a given year From this, the interim status units that will require closure may be identified The plan for the decommissioning of all buildings and structures at the Site will be contained in the DPP However, unit-specific closure schedules must be included in their respective Closure Description Document at the time submittal

e Decontamination of an interim status unit will be initiated as soon as practicable following the removal of wastes or containers Decontamination of equipment will be done after the last use of the equipment in closure activities, or prior to leaving the contaminated area, as necessary Detailed information on decontamination is provided in Sections C and D of this Closure Plan

f Soil sampling and analysis, when required as a part of this Closure Plan, will be accomplished in accordance with soil contamination evaluation procedures discussed in Section F of this Closure Plan

6 General Closure Activities

a Partial Closure Activities

For the purposes of this closure plan, partial closure refers to the closure of portions of an interim status unit Some examples include the closure of a tank while the ancillary equipment is left for a RFCA regulated cleanup activity, the closure of individual cargo containers or gloveboxes within an interim status unit, or the closure of an area or areas within an interim status unit

b Closure of Interim Status Units

Specific information regarding the method of closure for individual interim status units will be provided in the Closure Description Document which may be provided separately or as part of a RFCA decision document The appropriate document will be provided to the Division for approval as part of the preclosure notification of the intent to initiate closure of an interim status unit

c Maximum Waste Inventory

The maximum inventory capacity of each of the interim status units is identified in the RCRA Part A Application dated February 10, 1997, with the exception of the idle equipment inventory which is included in "Appendix 1 - Idle Equipment with Hazardous Materials Inventory" required under Consent Order No 97-08-21-01 The idle equipment inventory includes estimates of the amount of waste contained in each piece of idle equipment

d Closure personnel

Actual numbers of personnel required for the closure of individual interim status units will be determined at the time of closure based on the closure schedule, safety, and regulatory standards Minimum crews are required for health and safety (H&S) requirements Personnel involved in the closure of interim status units will be qualified in accordance with Part IX Personnel Training, of the Site's RCRA Permit, and trained in necessary mechanical skills for conducting the closure, decontamination techniques, and safety procedures necessary to accomplish closure

e Replacement of Equipment and Components

Prior to the closure of the Site, some equipment and components in interim status units may require replacement or removal However, no dismantlement of the unit itself will commence until the CDD has been approved by the Division The equipment or components to be replaced or removed will be identified in the CDD and then characterized, treated, stored or disposed in accordance with applicable regulations

f Final Closure of Units

The options for the final closure of the interim status units to be closed in accordance with this Closure Plan have been developed to meet the regulatory requirements for their closure and to allow interim status unit closure to be conducted concurrently with RFCA regulated cleanup activities As a part of closure, all interim status units and equipment thereof will either be

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disposed of appropriately or decontaminated, as necessary, to meet the applicable closure performance standard

Closure plans for the interim status units are predicated on the availability of some combination of on-site and off-site waste management capabilities for the storage, treatment, and disposal of inventory and cleanup waste Efforts will be made to minimize waste generation as a result of closure

The final disposal of any hazardous or mixed waste generated as a result of closure will be dependent on the nature of the waste and the availability of permitted waste management facilities within the DOE complex and the private commercial sector

g Waste Requiring Disposal as Part of Closure

The amount of waste generated from the closure of an interim status unit or units at the Site will be dependent on the type and amount of decontamination conducted, the size of the interim status unit, and the applicable closure performance standard The volume of waste requiring disposal will include up to the maximum waste volume held in storage and the waste volume generated during closure of the interim status unit It is difficult to determine the final amount of waste at the Site that will require disposal as a result of closure, however, an estimate would be at least the total volume of waste approved for storage at the Site Specific waste generation estimates will be included in each unit's CDD

7 Recordkeeping

The following closure records will be maintained at the Site during closure activities and at a federal repository for a minimum of 30 years following certification of Site closure

a record of sampling activities (date, number, and type),

b results of screening activities, sampling of decontamination rinse waters, soil sampling, or groundwater sampling,

c actions taken to decontaminate or remove waste structures or soils, including contaminated soils,

d other documentation which verifies that the Closure Plan is following the work package and the conditions of this permit,

e records of volume of hazardous waste generated during closure, including contaminated soils, and

f closure description documents that are prepared to support interim status units that are part of the process waste transfer and collection system will be integrated with and tracked on Figure 1 - Process Waste Transfer and Collection System to account for the closure that has been completed For interim status units that are not considered part of the process waste transfer and collection system, the closure description documents will be integrated with and tracked in the "Master List of RCRA Hazardous Waste Units" Tracking will include

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incorporating revised unit drawings for systems which have not been completely closed (i e , mixed residue tank systems for which piping has been stripped-out but the tank itself remains)

8 Amendment of the Closure Plan

6 CCR 1007-3 Part 265 112 requires the Operator to amend the Closure Plan whenever changes in the operating basis or facility design occur that affect the Closure Plan, or a change in the expected year of closure occurs 6 CCR 1007-3, Part 265 112(c)(3) requires the Operator to request modification of the closure plan within 30 days of identification of any event that causes modification of the closure plan to be necessary In conducting final or partial closure, unexpected events that are identified during the implementation of closure activities may require an amendment of this Closure Plan Modifications to this Closure Plan will be made in accordance with applicable regulatory requirements

C CLEAN CLOSURE BY DECONTAMINATION

Clean closure of interim status units at the Site will be conducted in accordance with one of the three methodologies (decontamination, "debris rule" decontamination, or unit removal) described in the following sections

The objective of clean closure of an interim status unit at the Site is to eliminate the need for maintenance and post-closure care due to waste or constituents remaining at the interim status unit or on unit equipment Clean closure by decontamination will be accomplished by removing all waste present m the interim status unit, decontaminating all unit equipment and structures, removing any and all contamination present due to the operation of the unit, and achieving compliance with the applicable closure performance standards identified in RFCA Attachment 5, Table 2, Tier II - Groundwater Action Levels If this objective is attained, the interim status unit will be certified as "clean closed," and will require no post-closure care or maintenance

To achieve clean closure, it will be necessary to conduct and document activities as part of closure in accordance with this Closure Plan The following standard activities are to be conducted for accomplishing the clean closure of an interim status unit using decontamination techniques

1 Waste Inventory Removal

All wastes remaining in the interim status unit to be closed will be transferred to another interim status unit for storage or treatment or shipped off-site for treatment, storage, or disposal For interim status units that are not actively managing waste at the time of closure, the unit owner will verify and document that no wastes are present within the unit and/or equipment

2 Contaminant Evaluation

Decontamination requirements for the interim status unit being closed are dependent on the presence and distribution of contamination in the unit To determine the degree of contamination present within an interim status unit scheduled to undergo closure, the Operator will conduct an evaluation of the interim status unit The contaminant evaluation, to be included in the Closure Description Document, will include the use of process knowledge, radiological survey results, historical records

and may also include wipe or smear samples, or other non-intrusive methods to identify the presence and degree of contamination

The need, degree, and process for decontamination will be based on the information obtained from the evaluation For instance, for a container storage unit where no releases or only minor releases have occurred and documentation is available to track the life of the unit, it may be possible to eliminate the decontamination step and proceed directly with rinsing and sampling to verify closure

3 Decontamination

The type and degree of decontamination to be conducted and the decontamination materials to be used will be described in the closure description document, and its determination will be based on the contaminant evaluation of the interim status unit or upon general criteria relative to the entire unit In general, the two types of decontamination identified for use at the Site are solution and mechanical decontamination Solution decontamination will be conducted when possible due to less destructive results

Selection of the appropriate solution for decontamination will be based on the types of waste previously managed in the unit and the contaminants that are present Typical decontamination solutions include water with sodium carbonate and trisodium phosphate, water with calcium hypochlorite and sodium hydroxide, water with sulfuric acid, deionized water with ethylenediaminetetractic acid (EDTA) and citric acid, petroleum ether or other non-hazardous organic solvent, and water These solutions may be applied by one or more of the following methods manual application, hydroblasting, foam cleaning, or steam cleaning

Decontamination may also be conducted using more physically destructive methods Mechanical decontamination methods could include abrasive blasting, scarification, spalling, and vibratory finishing

4 Decontamination Activities

Decontamination of the interim status unit will be initiated in accordance with this Closure Plan and as part of a Division-approved unit-specific closure description document In some cases, decontamination will begin by removing any dust or other loose debris by vacuuming the unit

For tanks, generally, a decontamination solution will be introduced into the tank through existing piping If mechanical decontamination is to be conducted, steps to isolate the area being decontaminated will be taken The following general principles will be followed while conducting decontamination activities

a Whenever decontamination is being conducted, all efforts will be made to "contain" the contamination as part of H&S protocols Containment of the contamination released through decontamination may be accomplished by the use of temporary structures or other devices For instance, plastic sheeting may be placed on walls when floors are being cleaned to minimize contact with overspray or debris resulting from the decontamination technique

Small berms could be placed around areas of higher contamination to confine the decontamination media and the removed contaminants and not allow the contaminants to migrate to less contaminated areas of the interim status unit

b Decontamination will be carried out in a manner to prevent redeposition and relocation of contaminants In most cases, decontamination should be carried out from higher parts of the interim status unit toward the lower portions and from lower contamination areas to areas exhibiting higher amounts of contamination

c Whenever possible, methods which roughen or gouge the surface being cleaned shall be avoided If they are necessary, precautions will be taken to minimize the transfer of contaminants due to the decontamination method

d A preliminary consideration in selecting a decontamination method will be the minimization of decontamination wastes

Decontamination media will be removed from the surface undergoing decontamination by vacuum or other means and collected The area will then be rinsed with water that will be collected and managed, appropriately Treatment of the decontamination media may occur at the interim status unit undergo closure in accordance with the generator treatment provisions 6 CCR 1007-3, Section 100 21(d), if applicable, or these media may be transferred to another location (on or off-site) for treatment

5 Decontamination Residuals and Rinsate Management

Residuals from decontamination will be physically separated and collected from the surface or equipment undergoing decontamination This may include removal by mopping, vacuuming, vibrating, wiping, compressed air, rinsing, or other means Residuals from decontamination will be characterized and managed appropriately as a waste

The disposition of the rinsate will be dependent on the requirement for further decontamination The rinsate will be managed as a hazardous waste if it exhibits any of the hazardous waste characteristics or if it is generated as a result of decontaminating a unit that managed listed hazardous waste If the rinsate is generated from an intermediate rinse of an interim status unit and not the final rinse, it will be collected and managed as a waste, as appropriate If it represents the final rinsing of the interim status unit undergoing decontamination, it will be placed into a container, sampled, and analyzed to determine compliance with the applicable closure performance standard Following the completion of sampling and analysis, the rinsate will be managed as a waste and treated or disposed of accordingly

All sampling and analysis will be conducted in accordance with Site L-procedures that have been developed to comply with the methods specified in SW-846 and referenced in Part VI of the Site's RCRA Permit Following decontamination and rinsing the Co-Operator will evaluate the rinsate analysis results against the applicable closure performance standard

6 Closure Performance Standard

An interim status unit, unit equipment, or a portion thereof will be considered decontaminated upon removal of all visible waste residuals and when the final rinsate contains concentrations of priority pollutants (identified as having been managed in the unit) and heavy metal concentrations less than the levels identified in RFCA Attachment 5, Table 2, Tier II - Groundwater Action Levels In addition, the pH of the rinsate must be between 6 and 9

The final rinsate volume for external surfaces will not exceed two gallons per 100 square feet of surface area rinsed It is possible that the surface area to be rinsed is relatively small such that the maximum application rate of two gallons per 100 square feet does not produce adequate volumes for sampling and analysis In this case, the final rinsate volume must not exceed the minimum amount necessary to collect an adequate sample volume for analysis, and to completely contact the surfaces that may have come into contact with hazardous waste

The final rinsate volume for internal surfaces of tanks will not exceed 5% of the capacity of the tank

Analytical procedures will be conducted in accordance with approved laboratory procedures which meet the requirements of SW-846

These standards have been developed to attain a reasonable standard for the closure of the interim status units and equipment at the Site subject to clean closure The standard is intended to provide a minor degree of flexibility to attain clean closure while address anomalous situations that can be traced to non-waste sources (e g , lead-containing paint within a unit that could leach when subjected to decontamination activities)

Information regarding non-waste constituent sources that could impact the clean closure efforts will be identified in the Closure Description Document submitted to the Division as information on the interim status unit closure

If the results of the evaluation indicate that the applicable closure performance standard has been met, the unit or unit equipment will be considered "clean closed" and documentation will be prepared for certification by an independent professional engineer If the results indicate that contamination remains, appropriate steps, possibly including additional decontamination, to remove the remaining contaminants will be initiated

During the decontamination process, the interim status unit structures and equipment that fail to meet the closure performance standard will be managed as hazardous waste The decontamination procedures identified in Section C 4 of this Part may meet the requirements of a debris rule waste-specific treatment standard as an extraction technology Therefore, the closure standard for debris (identified in Section D of this Part) can be used without further washing or other decontamination provided the decontamination method meets the definition of an extraction technology as provided in 6 CCR 1007-3, Part 268 45, Table I(A)(1) and (2), provided the unit structures and equipment meet the definition of debris, and provided the debris is managed as a non-hazardous solid waste Following the completion of closure activities for an interim status unit, the equipment used during closure will be cleaned using an appropriate method to remove any contaminants that are present

In the event equipment or structures within the unit cannot be successfully decontaminated, the Site will notify the Division and evaluate potential alternatives Alternatives may include managing the unit under the RCRA stable requirements or deferring further decontamination or removal of the unit to the decommissioning or environmental restoration programs Provided the Division concurs with the proposed alternative, the Site will initiate a modification to the unit's closure description document, if necessary

7 Soil Contamination Evaluation

Where appropriate, an evaluation to determine if soil contamination is present will be conducted in accordance with the process steps identified in Section F of this Closure Plan

D "DEBRIS RULE" DECONTAMINATION

Debris Rule decontamination methods apply to portions of units and unit components for which there is no intended use or reuse and the debris is intended for discard This determination will be made based on the economic value of a particular component of a unit versus the cost of decontaminating the component to achieve a clean closure standard that would allow for continued use or reuse (i e rinsate analysis closure performance standard) All components subjected to this standard must meet the definition of debris as defined in 6 CCR 1007-3, Section 268 45 and be disposed of in accordance with applicable regulatory requirements Typical candidates for the Debris Rule decontamination standard include components that are impregnated with fixed radioactive contamination, tank systems and/or associated ancillary equipment, gloveboxes, other miscellaneous equipment

Since no portions of interim status units subject to this type of closure will be reused off-site and all debris will be disposed of as waste, decontamination utilizing extraction technologies identified in the "debris rule" are appropriate to attain a clean closure performance standard The following identifies standard activities to be conducted for accomplishing the clean closure of a interim status unit through "debris rule" decontamination

1 Waste Inventory Removal

All wastes remaining in the interim status unit and unit equipment to be closed will be removed and transferred to another interim status unit or shipped off-site for storage, treatment, or disposal

2 Contaminant Evaluation

Since this closure option is dependent on the decontamination of hazardous debris in accordance with the "debris rule," the contaminant evaluation is necessary only for the identification of the contaminants present and not the degree of contamination

Therefore, the contaminant evaluation will focus on the hazardous or mixed wastes managed in the interim status unit, the characterization and location of any releases or spills of the wastes having been managed, and the location of any staining on the surfaces of structures and equipment within the unit where waste management occurred

3 Decontamination Options

For interim status units that are to be closed using the "debris rule" (e g , tanks, roll filters, equipment, etc) decontamination will be conducted in the form of a waste-specific decontamination technology in accordance with 6 CCR 1007-3, Part 268 45, Table 1 By appropriately using the applicable waste-specific decontamination technology and obtaining acceptable results, contamination is removed and a visual closure performance standard is attained Hazardous debris that cannot be decontaminated or visually evaluated due to the physical nature of the debris (e g , piping, valves, etc) will continue to be managed as hazardous debris

4 Decontamination Activities

Prior to land disposal, hazardous debris must be decontaminated for each "contaminant subject to treatment" defined in 6 CCR 1007-3, Part 268 45(b) using the technology or technologies identified in Table 1, therein The following general principles will be utilized for waste-specific performance standards

a Hazardous debris that exhibits the characteristic of ignitability, corrosivity, or reactivity will be deactivated using one of the technologies identified in Table 1

b Performance standards identified in Table 1 must be achieved for each type of debris contained in a mixture of debris types

c Debris contaminated with more than one contaminant subject to treatment must be treated for each contaminant using one or more of the treatment technologies identified in Table 1

5 Decontamination Residuals Management

Residuals from the decontamination of hazardous debris will be physically separated from the decontaminated debris This may include removal by vacuuming, compressed air, rinsing, or other means Residuals from the decontamination of hazardous debris will be characterized and managed as a waste in accordance with the general requirements identified under 6 CCR 1007-3, Part 268 45(d)(1)

6 Closure Performance Standard

Following the completion of strip-out, dismantlement, waste-specific decontamination and the removal of decontamination residuals, the Co-Operator will visually inspect the surface of the debris, as appropriate, against the closure performance standard for a "clean debris surface "

The closure performance standard for determination that debris is no longer hazardous is a "clean debris surface " This is defined as "a surface that, when viewed without magnification, shall be free of all visible contaminated soil or hazardous waste except that residual staining from soil and consisting of shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and soil and waste in cracks, crevices, and pits is limited to no more than 5% of each square inch of surface area "

If the results of the inspection indicate the closure performance standard has been met, the hazardous debris will be considered a non-hazardous solid waste and will be removed and managed as non-hazardous debris for subsequent disposal

Documentation of the inspection will then be prepared and certified by an independent professional engineer If the results indicate that contamination remains, appropriate steps will be initiated to remove the remaining contamination or manage the debris appropriately

At any time before or after attempting alternate or additional waste-specific decontamination procedures, hazardous debris that fails to meet the closure performance standard may be managed as hazardous waste If hazardous debris within the interim status unit cannot be successfully decontaminated, it will be removed and managed as a hazardous waste

Following the completion of closure activities for an interim status unit, the equipment used during closure will be cleaned using an appropriate method to remove any contaminants that are present

7 Soil Contamination Evaluation

Where appropriate, an evaluation to determine if soil contamination is present will be conducted in accordance with the process steps identified in Section F of this Part

E UNIT REMOVAL AND DISPOSAL AS WASTE

For tank systems, gloveboxes, idle equipment and treatment units for which decontamination may not be feasible, clean closure may be performed by physically removing the unit and packaging the unit appropriately Removal will typically consist of dismantlement and removal of the associated tanks, equipment, gloveboxes and ancillary equipment Unit removal will not occur until the unit has been verified as being physically empty (i e , no free liquids or sludges) unless the liquids/sludges from the unit have been removed in accordance with standard operating procedures (e g , Tap and Drain procedures) that have been demonstrated as effective for removing wastes Dismantlement will likely occur using a "rip and strip" method which consists of isolating a unit or system (i e , disconnecting utilities, lockout/tagout implementation, as well as any other means necessary to prevent further addition of waste) and systematically dismantling the associated components

In most cases, equipment will be size reduced for packaging Packaging and characterization will be performed in order to comply the Section VI - Waste Analysis Plan of the RFETS RCRA Permit and the anticipated disposal site's waste acceptance criteria

The associated secondary containment may be decontaminated in accordance with Section C - Clean Closure by Decontamination of this Plan or may be deferred to either Decontamination and Decommissioning (D&D) or Environmental Restoration (ER) activities to be performed under a RFCA decision document For secondary containment which will be deferred, the Closure Description Document (CDD) must specify the subsequent management of the unit prior to ultimate closure The CDD may be submitted separately or as part of the D&D or ER decision document Portions of the unit, including the secondary containment, that have not been removed may be managed in accordance with Section F - RCRA Stable once approved by the Division

F RCRA STABLE

This strategy for clean closure allows the Co-Operator to conduct closure of the interim status unit in two stages, first by rendering a unit or portion of a unit "RCRA Stable," as described below, followed by completion of the final stage of closure as part of a RFCA regulated cleanup activity Once an interim status unit is placed in RCRA Stable configuration, final closure of the unit is deferred until it is scheduled pursuant to the RFCA budget planning process and prioritized and integrated with other activities RCRA Stable units will be indicated as such, pending final closure, in the "Master List of RCRA Hazardous Waste Units at Rocky Flats," which is updated semi-annually Elements of this closure strategy include the following

1 Waste Removal

a Rooms and Cargo containers
All hazardous and mixed waste in containers will be removed from the unit Surfaces of the unit (walls, floors, ceilings, tank sides, etc) will be wiped down or otherwise cleaned to a level that satisfies the definition of a clean debris surface as defined in paragraph D 6 of this Closure Plan

b Gloveboxes

All hazardous and mixed waste in containers will be removed from the unit Surfaces of the unit (walls, floors, ceilings, tank sides, etc) will be wiped down/cleaned with the objective of satisfying the definition of a clean debris surface In the event that the unit's surfaces can not be made to satisfy the clean debris surface definition, the unit will be wiped down to remove as much remaining removable contamination as reasonably possible The objective is to eliminate any significant risk from the remaining residuals

c Tank systems within buildings

Tanks and ancillary equipment will be emptied to the maximum extent possible using readily available means, with the objective of achieving less than 1 % by volume of holdup in the L and ancillary equipment, no significant sludge remaining, and no significant risk associated with the remaining residuals Once RCRA stable, tanks and ancillary equipment will be locked out and tagged out until closure is initiated

2 Eliminate Future Waste Input

Following the removal of the remaining wastes to the degree described above in 1 , the Co-Operator will eliminate the possibility of further waste introduction to the unit through physical means These could include blanking flanges on piping, locking out valves, deenergizing circuitry, locking doors to container storage units, or other means necessary to ensure that wastes cannot be reintroduced to the unit

3 Unit Management

After the unit is placed in a RCRA Stable configuration, the risk posed by the unit will be minimized and the Co-Operator may implement less stringent unit management practices once the alternative

management practices have been approved by the Division RCRA Stable units will be marked or labeled so as to indicate the type and volume of inventory remaining in the unit The inspection and monitoring requirements for a given tank system will be approved by the Division on a case by-case basis considering the type, volume of residuals remaining in the tanks, ancillary equipment and considering controls to prevent access to further additions of hazardous waste Once approved, the modified inspection and monitoring requirements will become part of the unit's operating record

4 Removal of the Unit

The interim status unit will remain idle until it is dismantled and the equipment and debris are handled appropriately When the unit and equipment have been cleaned or removed in accordance with the unit's closure description document, closure field activities will be considered complete and all applicable certifications, including independent P E certifications, will be completed and submitted as necessary

G SOIL CONTAMINATION

During conduct of closure activities, but not later than after the interim status unit structures and equipment have been successfully decontaminated, soil contamination will be evaluated This evaluation will be either non-intrusive or intrusive based on the following

1 If adequate documentation is available for all or part of the life of the RCRA interim status unit/area that identifies no spills or releases to the environment having occurred at any time during the operation, a visual evaluation will be conducted for verification This evaluation will document the presence or absence of any visible soil discoloration, spill residues, or other indicators of a spill or release to the environment having taken place from the interim status unit Once documented, any soil contamination as a result of waste management activities within the interim status unit will be deemed nonexistent, or

2 Interim status units that have secondary containment structures which have not been compromised or overtopped by a release of waste during the active life of the unit and visually verified and documented will not require soil sampling, or

3 Soil beneath interim status units that utilize an asphalt pad for secondary containment or as a base on which waste management took place will require sampling and analysis to determine the presence or absence of contamination, or

4 If soil contamination is discovered and it is determined that it may be effectively remediated as part of the current closure process, it will be addressed at the time of the ongoing closure activities for the interim status unit, or

5 If soil contamination is discovered and it is determined that remediation should be conducted as part of a RFCA regulated cleanup activity, the soil remediation will be included in the appropriate RFCA decision document

If soil sampling identifies contaminated soils associated with an area undergoing closure, a request for modification of the Closure Plan will be submitted which includes a schedule for closure activities Modification requests for closures being done as part of a RFCA regulated cleanup activity

in accordance with an approved RFCA decision document will be accomplished in accordance with the work change documentation requirements of RFCA (including any required public review and comment) A separate Closure Plan modification request will not be submitted

H CORRECTIVE ACTION

The RFCA has been established as the governing document for accomplishing the requirements of the corrective action program under 6 CCR 1007-3, Part 265 100 Therefore, whenever contamination of soil or groundwater is discovered, corrective action (remediation) is to be addressed and regulated by RFCA

I POST-CLOSURE CARE REQUIREMENTS

The criteria used to determine if an interim status unit undergoing closure will be certified closed or follow post-closure procedures will be based upon the presence of soil or groundwater contamination If these media have been contaminated by an interim status unit and are to be left in place, then post-closure procedures will be conducted as identified in the applicable RFCA remediation decision document

19/19